

## Claims

What is claimed is:

- 1           1.     A method for implementing coexistence and cooperation  
2     between system firmware and debug code in a test system comprising the  
3     steps of:  
4           providing a service processor coupled to a machine under test for  
5     sending system firmware test functions to said machine under test and  
6     receiving test data from said machine under test;  
7           providing a host computer coupled to said service processor for  
8     sending bring-up tool debug test functions to said machine under test and  
9     receiving test data from said machine under test;  
10          starting said system firmware test functions without user intervention  
11       on initial power-on routine of the machine under test;  
12          receiving a user request with said host computer and notifying said  
13       service processor; and  
14          starting said bring-up tool debug test functions responsive to said  
15       user request.
- 1           2.     A method for implementing coexistence and cooperation  
2     between system firmware and debug code in a test system as recited in  
3     claim 1 wherein the step of providing said service processor coupled to a  
4     machine under test for sending system firmware test functions to said  
5     machine under test and receiving test data from said machine under test  
6     includes the step of storing system firmware in said service processor for  
7     sending said system firmware test functions to said machine under test and  
8     receiving said test data from said machine under test by said service  
9     processor.

1           3.     A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 1 wherein the step of providing said host computer coupled to said  
4 service processor for sending bring-up tool debug test functions to said  
5 machine under test and receiving test data from said machine under test  
6 includes the step of storing a bring-up tool in said host computer for sending  
7 bring-up tool debug test functions to said machine under test and receiving  
8 test data from said machine under test.

1           4.     A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 1 includes the steps of identifying a failure in said machine under test  
4 with said system firmware test functions, stopping said system firmware test  
5 functions, and notifying said host computer.

1           5.     A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 4 includes the step of receiving a user request and starting said bring-  
4 up tool debug test functions responsive to said user request.

1           6.     A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 5 includes the step of completing said bring-up tool debug test  
4 functions and starting said system firmware test functions without user  
5 intervention.

1           7.     A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 1 wherein the steps of providing said service processor coupled to said  
4 machine under test for sending system firmware test functions to said  
5 machine under test and receiving test data from said machine under test;  
6 and providing said host computer coupled to said service processor for  
7 sending bring-up tool debug test functions to said machine under test and  
8 receiving test data from said machine under test includes the step of  
9 providing said service processor with a scan controller coupled to said  
10 machine under test and said system firmware test functions and said bring-  
11 up tool debug test functions controlling access to the scan controller.

ROC920010080US1

09373850, 060404

1           8.     A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 7 includes the step of storing system firmware in said service  
4 processor for controlling said scan controller for sending said system  
5 firmware test functions to said machine under test and receiving said test  
6 data from said machine under test by said service processor.

1           9.     A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 8 includes the step of storing a bring-up tool in said host computer for  
4 controlling said scan controller for sending bring-up tool debug test functions  
5 to said machine under test and receiving test data from said machine under  
6 test.

1           10.    A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 1 includes the step of completing said bring-up tool debug test  
4 functions.

1           11.    A method for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 10 includes the step of starting said system firmware test functions  
4 without user intervention.

1           12. Apparatus for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system comprising:  
3           a service processor coupled to a machine under test for sending  
4 system firmware test functions to said machine under test and receiving test  
5 data from said machine under test;  
6           a host computer coupled to said service processor for sending bring-  
7 up tool debug test functions to said machine under test and receiving test  
8 data from said machine under test;  
9           said service processor including a scan controller for transferring said  
10 system firmware test functions and said bring-up tool debug test functions to  
11 said machine under test and receiving said test data from said machine  
12 under test; and  
13           said system firmware test functions and said bring-up tool debug test  
14 functions controlling access to said scan controller.

1           13. Apparatus for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 12 wherein said scan controller is coupled to said machine under test  
4 by a JTAG bus.

1           14. Apparatus for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 12 wherein said host computer coupled to said service processor  
4 includes system firmware for providing a graphical user interface.

1           15. Apparatus for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 12 wherein said host computer is responsive to a user request for  
4 sending bring-up tool debug test functions to said machine under test and  
5 receiving test data from said machine under test.

1           16. Apparatus for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 12 wherein said service processor is responsive to an initial power-on  
4 routine of the machine under test for sending system firmware test functions  
5 to said machine under test and receiving test data from said machine under  
6 test without user intervention.

1           17. Apparatus for implementing coexistence and cooperation  
2 between system firmware and debug code in a test system as recited in  
3 claim 12 wherein said service processor is responsive to said bring-up tool  
4 debug test functions completing for sending system firmware test functions  
5 to said machine under test and receiving test data from said machine under  
6 test without user intervention.

1           18. A computer program product for implementing coexistence and  
2 cooperation between system firmware and debug code in a test system  
3 including a service processor coupled to a machine under test and coupled  
4 to a host computer, said computer program product including a plurality of  
5 computer executable instructions stored on a computer readable medium,  
6 wherein said instructions, when executed by said service processor, cause  
7 the service processor to perform the steps of:  
8           starting system firmware test functions without user intervention on  
9 initial power-on routine of the machine under test;  
10          sending system firmware test functions to said machine under test  
11 and receiving test data from said machine under test;  
12          receiving a user request with said host computer and notifying said  
13 service processor; and  
14          starting said bring-up tool debug test functions responsive to said  
15 user request; and  
16          sending bring-up tool debug test functions to said machine under test  
17 and receiving test data from said machine under test.